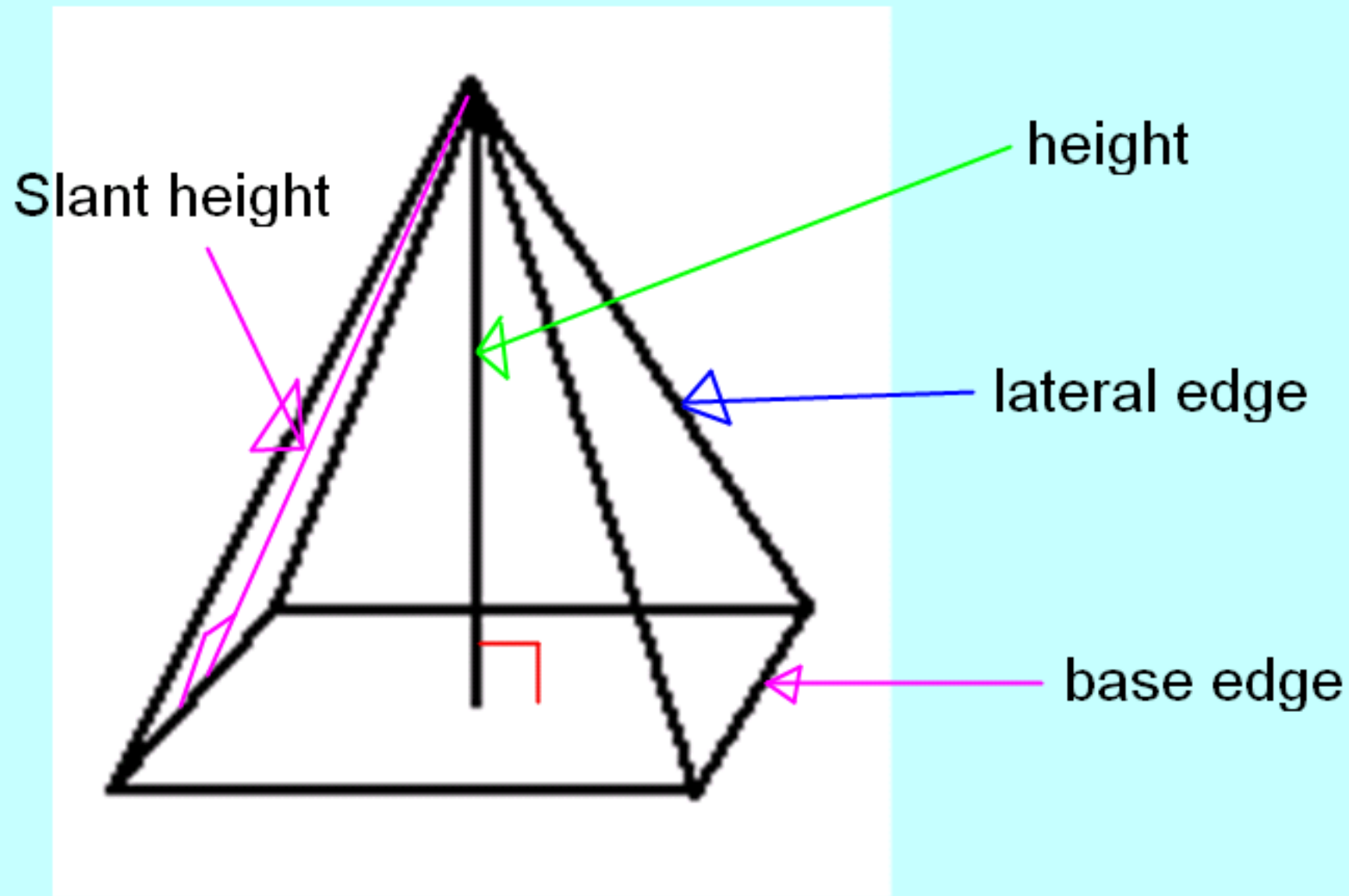


# Surface Area of Pyramids and Cones

Pyramid - a polyhedron in which the base is a polygon and the lateral faces are triangles that have a common vertex



Regular Pyramid - a pyramid is regular if its base is a regular polygon and if the segment from the vertex to the center of the base is perpendicular to the base

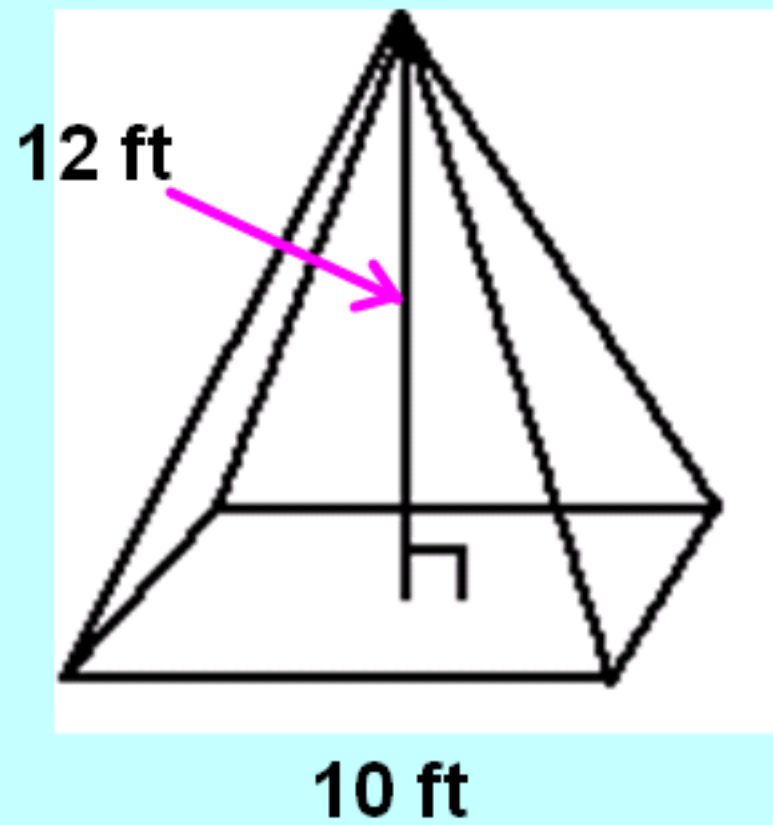


**Regular Pyramid**

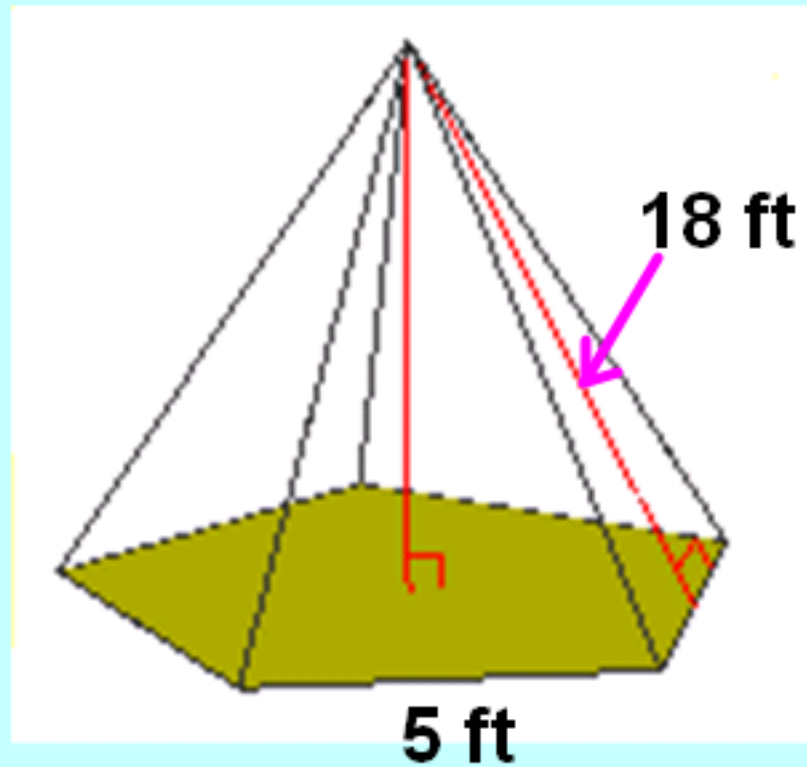


**Irregular Pyramid**

Let's find the surface area of a the Regular Pyramid below.



Let's find the surface area of a the Regular Pyramid below.



NOTE: The area of the base is approximately  $43 \text{ ft}^2$ .

## **Theorem 12. 4 - Surface Area of a Regular Pyramid**

The surface area,  $S$ , of a regular pyramid is

$$S = B + \frac{1}{2}PI$$

where  $B$  is the area of the base,  $P$  is the perimeter of the base, and  $I$  is the slant height

**Cone** - a solid that has a circular base and a vertex that is not in the same plane as the base

**Right cone** - a cone in which the vertex lies directly above the center of the base

\*\* the slant height of a right cone is the distance between the vertex and a point on the circumference of the circle

## **Theorem 12.5 - Surface Area of a Right Cone**

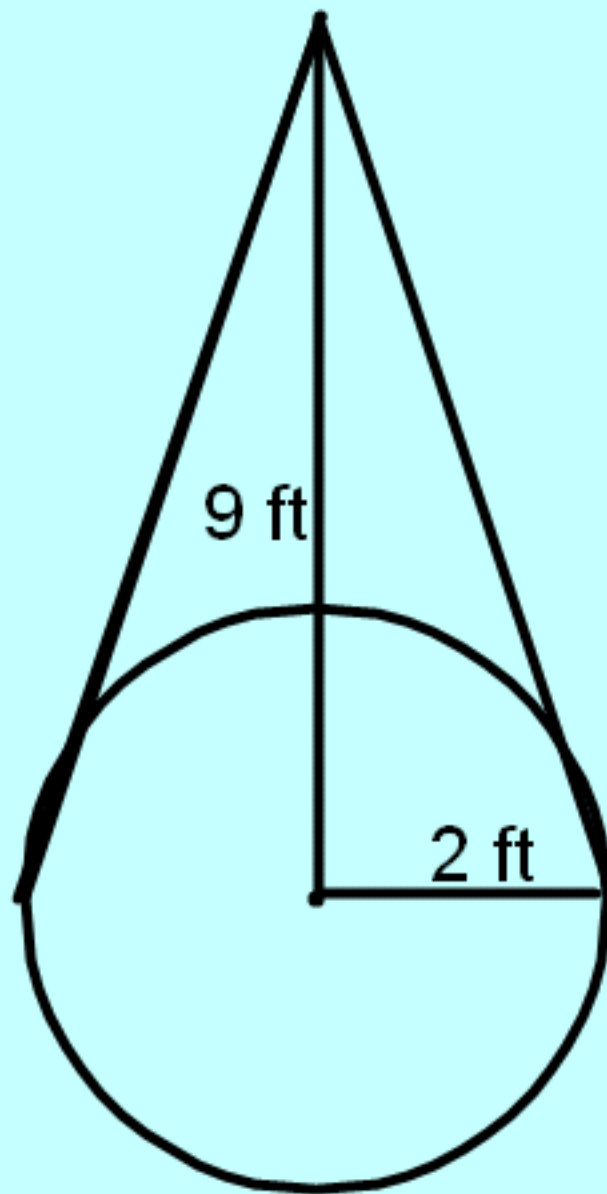
The surface area,  $S$ , of a right cone is

$$S = \pi r^2 + \pi r l$$

where  $r$  is the radius of the base and  $l$  is the slant height of the cone



Find the surface area of the right cone below.



Practice: p. 603 (16, 18,  
20, 22,  
24, 25)

Ticket Out: p. 603 (26)

Homework: Extra Practice 12.3 (1-9, 13, 14)